Manzano High School student wins top award in 22nd New Mexico Supercomputing Challenge

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LOS ALAMOS, New Mexico, April 24, 2012—Jordan Medlock of Albuquerque's Manzano High School took the top prize in the 22nd New Mexico Supercomputing Challenge for his computer algorithm that automates the process of counting and analyzing plaques in magnetic resonance images of persons diagnosed with Alzheimer's disease. The program vastly speeds up the process of identifying the very

small and difficult to see plaques.For his project, “Detection of Alzheimer’s Disease Plaques in a Transgenic Mouse Brain Using Image Analysis of SPION-Enhanced Magnetic Resonance Images,” Medlock received a check for $1,000.Los Alamos Middle School student Cole Kendrick took second place for his project, “Computer Simulation of Dark Matter Effects on Galaxy Collisions.” Kendrick received a check for $500. He also received the $100 Crowd Favorite Award chosen by teachers and students, and the Best Presentation Award. Kendrick took the top prize in last year’s Supercomputing Challenge for his computer program to model the rotation of a galaxy including dark matter.The Albuquerque La Cueva High School team of Alexandra Porter, Stephanie Djidjev and Lauren Li took third place for their project “Optimizing Community Detection.” The trio also received the Women in Science and Engineering Award. The third place team members each received $250.Seven other teams were finalists in the yearlong competition culminating in Tuesday’s awards ceremony in Los Alamos. These finalist teams received plaques and banners for their school; team members also each received $50.The Supercomputing Challenge is open to any New Mexico high-school, middle-school, or elementary-school student. More than 200 students representing about 60 teams from schools around the state spent the school year researching scientific problems, developing sophisticated computer programs, and learning about computer science with mentors from the state’s national laboratories and other organizations.The goal of the yearlong event is to teach student teams how to use powerful computers to analyze, model, and solve real-world problems. Participating students improve their understanding of technology by developing skills in scientific inquiry, modeling, computing, communications, and teamwork.Other winners

- Melrose High for Best Technical Poster Award. The poster will be used on the front cover for the 2012-13 final reports book, which will be published this fall during the kickoff for the 2012-13 Supercomputing Challenge.
- Claire DeCroix of Los Alamos Middle School won the Best Graphical Poster Award. Her design will become next year's logo and will appear on t-shirts, the Challenge website, and teacher bags.
- Rio Rancho Cyber Academy received the Science Rocks Award for their project “Reverse Osmosis.”
- A joint team from Desert Academy, Santa Fe High School and Academy for Technology and the Classics received the LANL Environmental Modeling Award for their project, “The Impact of Forest Fires on Water Resources.”
- The Las Cruces Women in Computing team members Marie Ellis, Samantha McGuinn, Hiba Muhyi, Noor Muhyi, and Cindy Yeh received the Teamwork Award from the New Mexico Council for High Education Computing/Communication Service for their project, “Utopia.”
- New Mexico School for the Arts received the New Mexico EPSCoR Climate Change/Water Resources award for their project, “Water You Waiting for Santa Fe?”
- Desert Academy of Santa Fe received the Sandia National Laboratories Creativity and Innovation Award for their project, “Language Acquisition in Computers.”
- AIMS@UNM received the Cray High Performance Computing Award for their project, “Modeling the Flow of the Interstellar Medium Within Localized Sectors of Space.”
- Edgewood Elementary School received the Best Researched award from the Council for Higher Education Computing/Communication Services for their report, “Duel of the Fuel.”

- A Los Alamos Middle School team received the Jeff Bingaman Middle School Award for the project, “Simulation of Multi-Agent Based Scheduling of Algorithms for Waiting-line Queuing Problems.”
- Down to Earth School received the Newcomer Award for their project, “Polystyrene Versus Down to Earth.”
- A Los Alamos High School team won the Python Programming Award for their project “ExcellAnts.”
- Artesia High School won the Best NetLogo award for its emergency egress model.

To read all the student reports, see the New Mexico Super Computing Challenge website.Nearly $42,000 in individual scholarships, including $10,000 each from LANL's Computer, Computational, and Statistical Sciences Division and Los Alamos National Security, LLC, which operates LANL, were awarded on Tuesday. Five students and their teachers also received $100 door prizes in random drawings.The Supercomputing Challenge is sponsored by Los Alamos and Sandia national laboratories and Los Alamos National Security, LLC.Educational partners include The Center for Connected Learning/NetLogo, CHECS, Eastern New Mexico University, MIT StarLogo, New Mexico Computing Applications Center, New Mexico EPSCoR, New Mexico Highlands University, New Mexico Institute of Mining and Technology, Northern New Mexico College, New Mexico Public Education Department, New Mexico State University, San Juan College, Santa Fe Community College, Santa Fe Institute, Santa Fe Complex, Swarm Development Group, the University of New Mexico and the UNM Center for Advanced Research Computing, and NMSU-Doña Ana Community College.Gold commercial partners are Lockheed Martin, Los Alamos National Laboratory Foundation, Abba Technologies/SGI, Google RISE, Intel Corporation, The Math Works, Synergy Group, Vandyke Software Inc., and Wolfram Research, Inc.. “Silver” commercial partners are Gulfstream Group and bigbyte.cc, and Technology Integration Group. Bronze commercial partners are Anthony Giancola, Albuquerque Journal, Qforma, PY Multimedia Services, Innovate Educate NM, Cray Inc., Lobo Internet Services, New Mexico Business Weekly, New Mexico Technology Council, Redfish Group, and Sun Microsystems.